for MM patients using non–melphalan-based conditioning regimens. Patients were enrolled in the study after exhibiting response to induction therapy and meeting eligibility criteria. The treatment plan was designed to harvest a dose of 10×10^6 peripheral blood CD34+ cells/kg for the planned 2 transplants; however, a second ASCT would be pursued only in the event that CR/VGPR was not achieved after the first ASCT. The conditioning regimen for the first ASCT included oral busulfan 0.75 mg/kg every 6 hours on days −8 through −5, intravenous (IV) etoposide 10 mg/kg/day on days −4 to −2, and cyclosphosphamide (CP) IV 60 mg/kg/day on days on −3 and −2. The conditioning regimen for the second ASCT included 96-hour (days −6 through −3) continuous infusion of CP (6 g/m^2) and total body irradiation of 600 cGy in 4 fractions (days −2 and −1), followed by reinfusion of stem cell product. Forty evaluable patients have been analyzed. The median patient age was 56 years, with a median time from diagnosis to first ASCT of 8.7 months. Thirteen patients met the criteria for high-risk myeloma. After the first ASCT, 15 patients had CR/VGPR, 11 proceeded to the second ASCT, 8 refused to proceed to the second ASCT, and 6 others did not proceed for other reasons. All patients were offered posttransplantation maintenance therapy and treated with monthly bisphosphonate. There was no treatment-related mortality. Overall, 2 of 29 patients who underwent single transplantation died 17 and 15 months after the transplantation secondary to disease progression (DP) or pneumonia. Three out of 11 patients who underwent tandem transplantations died, 2 of DP at 15 and 26 months after the second transplantation, and 1 patient with a history of gastric bypass died of cryptogenic cirrhosis/liver failure at 7 months. The median time between the two ASCTs was 107 days. Improvement in response category occurred in 34% after the first ASCT and in a total of 55% after the second ASCT. The overall CR/VGPR rate was 20% before ASCT, 52% after single transplantation, and 64% after double transplantation. At a median follow-up of 15 months from the last ASCT, PFS was 14 months after single transplantation (n = 29) and 23 months after double transplantation (n = 11) (P = .46). The overall survival has not been reached for both groups. The median PFS was 41 months for all those with CR/VGPR, versus 26 months for all others (P = .0146). In conclusion, non–melphalan-based conditioning regimens seem to be effective and safe.

197

CD34+CD38− AND CD34+HLA−DR− CONTENTS IN BMSC GRAFTS CORRELATE WITH SHORT-TERM ENGRAFTMENT BUT HAVE NO INFLUENCE ON LONG-TERM HEMATOPOIETIC RECOVERY IN PATIENTS WHO RECEIVED AUTOLOGOUS BONE MARROW TRANSPLANTATION

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Previous animal and human studies have demonstrated that the number of CD34+ subsets such as CD34+CD38− and CD34+HLA−DR− subsets in stem cell grafts is significantly associated with the speed of short-term hematopoietic reconstruction (SHR). The aim of this study was to determine whether these CD34+ subsets predict long-term hematopoietic reconstitution (LHR) in recipients of autologous bone marrow transplantation (ABMT).

We have examined 53 lymphoma patients who received ABMTs to determine if total mononuclear cell dose, CFU-GM, CD34+ cell dose and CD34+ cell subsets (CD34+CD38− and CD34+HLA−DR−) correlate with both SHR and LHR. Time to neutrophil engraftment (TNE) and time to platelet engraftment (TPE) were used to measure SHR, and platelet count was used as an indicator of LHR at day 100 and 1 year post-ABMT. A total of 42 and 38 patients were analyzed at day 100 and 1 year post-transplant, respectively. Patients were excluded either because they were deceased or there was lack of follow-up data. Using a univariate unadjusted logistic regression analysis, all of the predictor variables were significantly associated with SHR. However, at day 100, only CFU-GM and CD34+ cell dose significantly predicted LHR. In addition, at 1 year post-ABMT, only CD34+ cell dose predicted LHR. CD34+ cell dose maintained its significance in multivariate analysis adjusting for age, sex, and disease. None of the CD34+ cell subsets predicted LHR.

198

ELEVATED MEAN CORPUSCULAR VOLUME (MCV) FOLLOWING AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION: INCIDENCE AND SIGNIFICANCE

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Background: A relationship between macrocytosis and the risk of secondary leukemia has been suggested in long-term cancer survivors after chemotherapy. The incidence and significance of MCV elevation after high-dose chemotherapy and autologous hematopoietic stem cell transplantation (ASCT) is unknown. **Methods:** A retrospective analysis of 130 consecutive patients who underwent ASCT between January 1999 and December 2003 was performed. Complete blood count profile was analyzed at transplantation and then at 6 months, 1 year, and yearly after transplantation. Patients with relapse of disease within 6 months of transplantation were excluded. Sixty-three of 130 (48%) patients were eligible for the study. Patient characteristics and time to achieve long-term hematologic recovery (hemoglobin > 12 g/dL, WBC > 4000/mm^3, platelets > 150,000/mm^3) were analyzed. When available, history of alcohol abuse, abnormal liver function, thyroid function, vitamin B_{12}, and folate deficiency were recorded. **Results:** At median follow-up of 22 months (range, 6–58 months), 33 of 63 (52.8%) patients displayed elevated MCV 6 months posttransplantation. The median patients age was 12 years (range, 1–76 years). Four patients underwent double transplantation. Median time to engraftment for neutrophils and platelets was 12 and 19 days, respectively. The median time to trilineage hematologic normalcy was 289 days; 27 of 33 (81%) patients had suboptimal long-term hematopoietic recovery at 6 months (WBC, 5 months; hemoglobin, 14 months; platelets, 22 months).

At 6 months posttransplantation, 15 of 43 (35%) adult patients displayed elevated MCV (normal, 81–99 fl); the mean pretransplantation MCV of 97.5 fl increased to 102.7 fl (P = .004). Of the 20 pediatric patients, 18 (91%) displayed elevated MCV at 6 months posttransplantation; mean pretransplantation MCV of 90.8 fl increased to 94.1 fl (P = .001). Persistent MCV elevation was observed in 17 of 26 patients (65%) at 1 years posttransplantation and in 7 of 14 patients (50%) at 2 years posttransplantation. Pretransplantation red cell distribution width (RDW) was higher pretransplantation (63%) than at 6 months posttransplantation (45%). Further investigations of MCV elevation available in 10 patients were negative. No patients developed MDS or leukemia. **Conclusion:** MCV elevation after high-dose chemotherapy and ASCT is frequent, with an incidence of 52.8%. Macrocytosis occurred unrelated to anemia; routine workup of macrocytosis is unnecessary. Longer follow-up is needed to determine its significance, if any.

199

MYELOABLATIVE CHEMOTHERAPY AND AUTOLOGOUS PERIPHERAL STEM CELL TRANSPLANTATION WITHOUT THE USE OF BLOOD PRODUCTS

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Background: Refusal of blood products poses a treatment challenge for Jehovah's Witness patients whose malignant diseases require high dose chemotherapy. We report our findings from a series of Jehovah's Witness patients who were enrolled in our